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(71)Applicant : TSUJINO JIROMARU

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(72)Inventor : TSUJINO JIROMARU

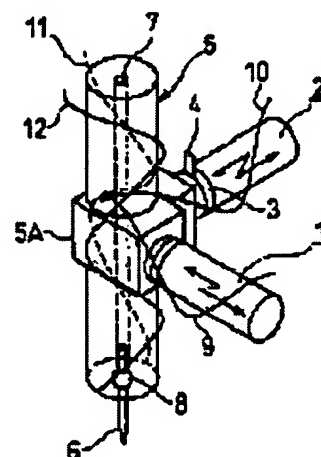
(54) ULTRASONIC WIRE BONDER USING COMPOSITE BEND VIBRATION SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain an ultrasonic wire bonder which eliminates the need for alignment of a wire bonding operation and whose operating efficiency is enhanced by a method wherein a vibration mode is controlled two-dimensionally by a composite bend vibrator which is vibrated in two orthogonal directions and a capillary for the wire bonding operation is attached to, and removed from, the tip of the vibrator.

SOLUTION: Electric signals from ultrasonic oscillators which correspond to two orthogonal longitudinal vibrators 1, 2 for driving are applied to electrostrictive elements or the like in both vibrators 1, 2, the electric signals are converted into acoustic vibrations so as to be resonated, and a composite bent vibrator 5 which is coupled orthogonally to both vibrators 1, 2 is excited.

Then, a capillary 6 is placed on the tip of the composite bend vibrator 5 so as to be freely detachable, a composed vibration caused by a composite bent vibration is generated at the capillary 6, its vibration track draws Lissajous' figure, and the vibration amplitude and the phase of both longitudinal vibrators 1, 2 are controlled electrically so as to be adjusted two-dimensionally.



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